

To: Dr. Terry Terrell, RMNP Science Officer, Dr. Paul A. Opler, Project Adviser, and
Eric Adams, MacGregor Ranch
From: Richard O. Bray
Date: October 6, 2004
Subject: 2004 Season, Rocky Mountain Butterfly Project

During the 2004 season, 276 butterfly surveys of 15 transects in RMNP were conducted by project volunteers. 19 of these were on the Black Canyon Route and 29 on the MacGregor Falls route, surveys facilitated through the courtesy of the MacGregor Ranch. This is the tenth year of the project and the eighth data-gathering year in our efforts to create indices of abundance for major RMNP butterfly species. The project logged 2885 volunteer hours from May 1 to September 30, 2004, the project's cumulative total is now 23,452 volunteer hours. 105 species were seen during the 2004 season. Dr. Opler's RMNP list is now at 137 species. My count of the species on this list continues to get added wrong as happened again last year. We added *Oeneis uhleri* after S. Mason caught it on our Shadow Mountain Dam route and a second one appeared there a week later, making the confusion over the identity of the AMNH specimen caught by Sperry in the 1930s mute. We withheld, for database reasons, making several recent taxonomic name changes, preferring to delay this till the end of the project.

This year, probably due to the cold and wet season (the precipitation total for June, July and August was the wettest in Estes Park's 73 years of weather records beginning in 1931, per John Gullicksen NWS), butterfly numbers were way down. Several visitors from the Ohio Lepidopterists commented, 'why would anyone come to RMNP to see butterflies?' Nevertheless our data highlighted 34 major butterfly species. Our total for 1996 through 2004 now stands at 75 major species for the park. We added *C. spinetorum* to the major species list whose host plant is mistletoe found growing on lodgepole and ponderosa pines. In *C. spinetorum*'s case it was flying in numbers on our Shadow Mountain Dam route, probably due to increased mistletoe on the drought stressed lodgepole on the westside.

We were able to enter 132 routes into the project's data base which brings the total entered to 1518 out of approximately 1946 surveyed to date. Richard Nugent worked on our data base program. He programmed several new reports and reprogrammed the database enabling it to generate quicker reports. He was successful in cutting the time from several hours per report to several minutes per report. His work highlighted a large amount of spurious data buried in the program which doesn't show up in our entered routes or field books. This problem was first spotted by Dan Fitzpatrick last year. Richard Nugent has suggested a procedure for tracking down and eliminating these artifacts that may presently skew the reports.

We added a specimens of *O. uhleri*, *E. vestris*, and *E. mexicana* to the Interpretive Ranger Butterfly Collection maintained by the project. *Oeneis uhleri* was also added to the accessioned collection of Park butterflies housed at the CSU Gillette Museum.

We found two Ridings' satyrs flying at Eagle Cliffs this year. We hope the population will recover after finding none last year. We again found no Pine Whites at the research dorm colony. However they continue to appear throughout the eastside of

the Park, particularly this year along Cow Creek. A Colorado state late date for *P. rutulus* was recorded on Cow Creek September 6th.

Leslie Angel continued work on her book Common Butterflies of RMNP for delivery to Johnson Press this fall. Thanks to Larry Frederick's efforts, RMNA offered to publish an abbreviated version of Leslie's checklist, Butterflies of Rocky Mountain National Park a Checklist and Flight Times. She created it last winter and we hoped RMNA might publish it in color. However, as a result of conversations with Leslie and Larry, it was decided to save the Park the cost and let Johnson Press handle it in conjunction with Leslie's book. If the checklist proves popular they will consider printing it in color.

Vanessa Glynn-Linaris working with Bob Waltermire updated our 1996 RMNP map showing our Transect locations, and adding Major Species as of 2004. She added topography and redesigned the layout, checked several coordinates and printed a set of aerial photos showing the Transects. The aerial photos were done originally by Bob with our fine tuning the routes using visual cues. Vanessa's work highlighted several changes that will have to be addressed.

Rocky Mountain National Park provided housing for myself and two volunteers at The Continental Divide Research and Learning Center. The Park staff at all levels were supportive and helpful throughout the season. Bob Waltermire, at the USGS Fort Collins Science Center, continued to be available for computer GPS and GIS support. He arranged for Vanessa Glynn-Linaris to work on updates of the Project Map and aerial photos showing our route locations. Ke Liu, whose parents work at UCAR, searched weather databases for us. Mary Ann Cullen, a 6th grade science teacher from Houston, helped us survey routes. Except for Gabrielle Dietrich, our long term volunteers again returned to survey routes this year. Kristen Burkhalter from the Center for Disease Control for her third year, Carrie Kisiday for her third year, Jan Chu for a fifth year, Taffy Wardo for a sixth year, and Paula Edwards and Stephanie Mason for their seventh years. Lynn and Gene Monroe continue monitoring the Ridings Satyr population below Eagle Cliffs. We are blessed with a wonderful group of volunteers, without whom this project would not be possible. As always, we look forward to another successful year at 'Rocky'.

INTERIM REPORT - 2004
ROCKY MOUNTAIN BUTTERFLY PROJECT
ROCKY MOUNTAIN NATIONAL PARK

The Rocky Mountain National Park Butterfly Project is a biodiversity study designed to provide baseline data on butterflies chosen to represent the “forgotten” 90% or more of the world’s fauna: invertebrates. Butterflies are highly visible, as well as sensitive to ecological change through all stages of their life cycle: egg, caterpillar, chrysalis and adult. To date the project has provided data for eight years showing annual population fluctuations on selected transects. Replication of the study in the future, when compared to the final multi-year baseline, will show long-term trends in the relative abundance and community associations on those transects. This information is not presently available for the insect component of the Park’s fauna. As such, it is a meaningful addition to Park research designed to monitor ecological change in the Park’s environment.

PROJECT DESCRIPTION: During 1995-2002 thirty-three kilometer-long transects were located throughout the Park representing its major life zones. From 1997-2004, selected transects were chosen for data gathering and surveyed from the first week in May to the middle of September using the protocol described in Monitoring Butterflies for Ecology and Conservation, Pollard and Yates, Chapman and Hall, London, 1993. The data will be used to create indices of abundance for major Rocky Mountain National Park butterfly species. At the end of the 2004 season, there were one hundred and thirty seven butterfly species on the park list, seventy five of which qualify as major species. To allow replication of the transects, each one is located using Global Positioning System technology. The Universal Transverse Mercator coordinates of each transect are stored in a Geographic Information System using the North American Datum for 1927 and 1983.

ROCKY MOUNTAIN BUTTERFLY PROJECT

Richard O. Bray, Project Manager

1996 Research Associates
Barri Bernier, Deborah Tyrrell

1997 Research Associates
Barri Bernier, Nathaniel Carroll, Tim Johnston,
Gene and Lynn Monroe

1998 Research Associates
Annie Brueck, Paula M. Edwards, Joanna W. Krinn,
Stephanie Mason, Gene and Lynn Monroe, and Brent A. Salazar

1999 Research Associates
Paula M. Edwards, Stephanie Mason, Mary Sue Miller,
Gene and Lynn Monroe, Mary Ann Walk, Taffy and Nicolle Wardo

2000 Research Associates
Lauren Augusta, Ron Butler, Jan Chu,
Paula M. Edwards, Stephanie Mason, Jean Morgan,
Gene and Lynn Monroe, Jean Starr, Taffy and Nicolle Wardo

2001 Research Associates
Ron Butler, Jan Chu, Paula M. Edwards,
Pat Fauquet, Stephanie Mason, Mike Perry, Jean Morgan,
Gene and Lynn Monroe, Taffy and Nicolle Wardo

2002 Research Associates
Leslie Angel, Stephen Aspen, Kristen and Phil Burkhalter, Ron Butler, Jan Chu,
Gabrielle Dietrich, Paula M. Edwards, Mary Jamieson, Carrie Kisiday,
Mary La Marca, Kathryn Ledin, Stephanie Mason, Gene and Lynn Monroe,
Jean Morgan, Marzia Nuzzolo, Amanda and Lisa Valley,
Adam Thomas, and Taffy and Nicolle Wardo

2003 Research Associates
Leslie Angel, Stephen Aspen, Kristen and Phil Burkhalter, Jan Chu,
Gabrielle Dietrich, David Duncan, Paula M. Edwards,
Lesli Joseph, Carrie Kisiday, Stephanie Mason,
Gene and Lynn Monroe, Marzia Nuzzolo, Amanda and Lisa Valley,
Linda Walsh, Taffy and Nicolle Wardo

2004 Research Associates

Leslie M. Angel, Kristen and Phil Burkhalter, Jan Chu,
Mary Ann Cullen, Paula M. and Karen J. Edwards,
Carrie M. Kisiday, Ke Liu, Stephanie L. Mason,
Eugene A. and Marilyn L. Monroe, Oscar O. Otto Jr.,
Meirav S. Siegel-Richman, Taffy A. and Nicolle E. Wardo

Project Technical Support

Dr. Terry Terrell, RMNP Science Officer
Dr. Paul A. Opler, Professor, Colorado State University, Advisor
Brad Ward, Vice President, Front Range Internet Inc., Data Base Program
Richard O. Nugent, Data Base Program
Bob Waltermire, M.Sc., USGS/FCSC, Computer Specialist
Vanessa M. Glynn-Linaris, GIS Mapping
Dan Fitzpatrick, Statistical Analysis Web-site
John Gullickson, Estes Park Weather Data
Adam Thomas, MacIntosh Computer Specialist
Therese Johnson, Biologist, M.Sc., 1995 RMNP Liaison
Dr. Ken Czarnowski, Research Administrator, 1996-99 RMNP Liaison

2004 SEASON
34 Major Butterfly Species* Found on 15 Transects in RMNP

1. AVT: *Colias meadii*
2. BCT: *Plebejus lupini*, *Chlosyne palla*, *Coenonympha tullia ochracea*,
3. BVF: *Celastrina ladon*
4. CCM: *Parnassius smintheus*, *Colias alexandra*, *Celastrina ladon*, *Plebejus icarioides*,
Coenonympha tullia ochracea, *Cercyonis oetus*
5. CCT: *Anthocharis julia*, *Callophrys eryphon*, *Celastrina ladon*, *Coenonympha tullia*
ochracea, *Cercyonis oetus*
6. CHA: *Plebejus shasta*
7. DRT: *Parnassius smintheus*, *Colias alexandra*, *Oeneis chryxus*
8. EVE: *Coenonympha tullia ochracea*
9. FLT: *Pieris marginalis*, *Celastrina ladon*, *Speyeria hesperis*, *Polygonia gracilis*,
Erynnis persius
10. LAV: *Oeneis melissa*
11. MGF: *Papilio rutulus*, *Callophrys affinis*, *Callophrys eryphon*, *Celastrina ladon*,
Speyeria edwardsii, *Chlosyne palla*, *Coenonympha tullia ochracea*, *Cercyonis oetus*
12. POD: *Pieris marginalis*, *Colias scudderii*, *Agriades glandon*, *Plebejus saepiolus*,
Speyeria mormonia, *Boloria freija*, *Boloria chariclea*, *Erebia epipsodea*,
13. SBT: *Oeneis chryxus*
14. SMD: *Colias philodice*, *Lycaena heteronea*, *Lycaena helloides*, *Callophrys*
spinetorum, *Callophrys eryphon*, *Glaucopsyche lygdamus*, *Agriades glandon*, *Plebejus*
saepiolus, *Speyeria mormonia*, *Phyciodes cocyta*, *Phyciodes pratensis*, *Coenonympha*
tullia ochracea
15. WBT: *Lycaena helloides*, *Callophrys eryphon*, *Celastrina ladon*, *Glaucopsyche*
lygdamus, *Agriades glandon*

* I have defined a major species as seen at least five times within the survey protocol's five meter box while walking a single survey tour of our kilometer long transects.

**TRANSECTS
THEIR DESCRIPTIONS AND MAJOR BUTTERFLY SPECIES
1996 - 2004**

Transect: AVT - Alpine Visitor Center Trail

Elevation: 3,512-3,532 meters (11,518-11,585 feet)

Land Form: Alpine Slope - route proceeds along a snowbank terrace of *Deschampsia caespitosa* into krummholz of *Abies lasiocarpa* and *Picea engelmannii*.

Major butterfly species: *Parnassius smintheus*, *Pontia protodice*, *Colias eurytheme*, *Colias meadii*, *Agriades glandon*, *Speyeria mormonia*, *Boloria chariclea*, *Nymphalis milberti*, *Vanessa cardui*, *Erebia callias*, *Pyrgus centaureae*, *Polites draco*

Transect: BCT - Black Canyon Trail

Elevation: 2,354-2,415 meters (7,720-7,920 feet)

Land Form: Montane bench - route proceeds across bench of *Bouteloua gracilis*, *Artemisia frigida*, *Ribes cereum*, and *Purshia tridentata* and through several intermittent stream gullies of *Populus tremuloides*.

Major butterfly species: *Pontia protodice*, *Colias eurytheme*, *Lycaena rubidus*, *Lycaena heteronea*, *Satyrium californica*, *Agriades glandon*, *Plebejus lupini*, *Polydrias arachne*, *Chlosyne palla*, *Vanessa cardui*, *Coenonympha tullia ochracea*, *Cercyonis oetus*, *Oarisma garita*, *Hesperia colorado*

Transect: BVF - Bridal Veil Falls

Elevation: 2,596-2,695 meters (8,515-8,840 feet)

Land Form: Montane stream canyon - route proceeds through an open woods of *Pinus ponderosa* and along a cascading stream with *Populus tremuloides* and *Alnus incana*.

Major butterfly species: *Colias alexandra*, *Callophrys eryphon*, *Callophrys polios*, *Celastrina ladon*, *Agriades glandon*, *Polygonia gracilis*, *Nymphalis antiopa*, *Nymphalis milberti*, *Vanessa cardui*, *Coenonympha tullia ochracea*, *Oeneis chryxus*, *Erynnis persius*

Transect: CCG - Cow Creek Global

Elevation: 2,427-2,561 meters (7,960-8,400 feet)

Land Form: Montane stream valley - route proceeds down a dry south-facing slope with *Pinus ponderosa*, *Juniperus scopulorum*, across a valley and up a north-facing slope of *Picea engelmannii*, *Picea pungens*, and *Pseudotsuga menziesii*.

Major butterfly species: *Callophrys gryneus*

Transect: CCM - Cow Creek Meadow

Elevation: 2,401-2,470 meters (7,875-8,100 feet)

Land Form: Montane stream valley - route proceeds through a dry meadow into a streamside woods of *Picea pungens*, *Pseudotsuga menziesii*, and *Populus tremuloides*.

Major butterfly species: *Parnassius smintheus*, *Papilio rutulus*, *Pontia protodice*, *Neophasia menapia*, *Colias eurytheme*, *Colias alexandra*, *Callophrys polios*, *Celastrina ladon*, *Euphilotes ancilla*, *Glaucopsyche lygdamus*, *Agriades glandon*, *Plebejus saepiolus*, *Plebejus icarioides*, *Plebejus lupini*, *Speyeria edwardsii*, *Speyeria atlantis*, *Speyeria hesperis*, *Chlosyne nycteis*, *Phyciodes cocyta*, *Phyciodes pratensis*, *Polygonia gracilis*, *Vanessa atalanta*, *Vanessa cardui*, *Coenonympha tullia ochracea*, *Cercyonis oetus*, *Oeneis chryxus*, *Erynnis icelus*, *Erynnis persius*, *Piruna pirus*, *Oarisma garita*, *Hesperia colorado*, *Polites draco*, *Ochlodes sylvanoides*

Transect: CCT - Cow Creek Trail

Elevation: 2,500-2,561 meters (8,200-8,400 feet)

Land Form: Montane stream valley - route proceeds along a stream through a *Populus tremuloides* meadow.

Major butterfly species: *Papilio rutulus*, *Pontia protodice*, *Euchloe ausonides*, *Anthocharis julia*, *Colias eurytheme*, *Colias alexandra*, *Callophrys eryphon*, *Celastrina ladon*, *Glaucopsyche lygdamus*, *Agriades glandon*, *Plebejus saepiolus*, *Plebejus icarioides*, *Speyeria aphrodite*, *Speyeria edwardsii*, *Speyeria atlantis* (before we split it), *Speyeria hesperis*, *Chlosyne nycteis*, *Phyciodes cocyta*, *Phyciodes pratensis*, *Polygonia gracilis*, *Vanessa atalanta*, *Vanessa cardui*, *Coenonympha tullia ochracea*, *Cercyonis oetus*, *Oeneis chryxus*, *Erynnis persius*, *Hesperia colorado*

Transect: CHA - Chasm Lake Trail

Elevation: 3534-3553 meters (11,662-11,725 feet)

Land Form: Steep Rocky hillside into wet alpine meadow - route proceeds across a steep, rocky, southeast facing hillside of *Pentaphylloides floribunda*, with krumholtz of *Abies lasiocarpa*, *Picea engelmannii*, *Pinus flexilis* then through boulder slides into an alpine carex meadow.

Major butterfly species: *Parnassius smintheus*, *Colias meadii*, *Plebejus glandon*, *Plebejus shasta*, *Speyeria mormonia*, *Boloria characlea*, *Chlosyne whitneyi*, *Euphydryas chalcedona*, *Vanessa cardui*

Transect: COR - Colorado River

Elevation: 2,761-2,784 meters (9,080-9,130 feet)

Land Form: Montane stream valley - route proceeds along a river edge through a *Salix* bog and then a meadow bench with *Picea engelmannii*, *Pinus contorta*, and *Vaccinium myrtillus*.

Major butterfly species: *Plebejus saepiolus*

Transect: DMS - Deer Mountain Slope

Elevation: 2,732-2,817 meters (8,960-9,240 feet)

Land Form: Montane hillside - route proceeds up a west-facing slope through an open woods of *Pinus contorta* and *Pinus ponderosa* and into a hillside meadow.

Major butterfly species: *Parnassius smintheus*, *Colias alexandra*

Transect: DMT - Deer Mountain

Elevation: 2,988-3,049 meters (9,800-10,000 feet)

Land Form: Montane mountain top - route proceeds along a mountain top ridge through an open woods of *Pinus contorta*, *Pinus flexilis*, *Pseudotsuga menziesii*, and *Populus tremuloides*.

Major butterfly species: *Oeneis chryxus*, *Erynnis persius*

Transect: DRT - Deer Ridge Trail

Elevation: 2,703-2,756 meters (8,865-9,040 feet)

Land Form: Montane saddle - route proceeds through an open woods of *Pinus contorta* and *Pinus ponderosa*.

Major butterfly species: *Parnassius smintheus*, *Pontia protodice*, *Euchloe ausonides*, *Colias eurytheme*, *Colias alexandra*, *Celastrina ladon*, *Glaucopsyche lygdamus*, *Agriades glandon*, *Euptoieta claudia*, *Vanessa cardui*, *Coenonympha tullia ochracea*, *Cercyonis oetus*, *Oeneis chryxus*, *Erynnis persius*

Transect: ECL - Eagle Cliffs

Elevation: 2,428-2,711 meters (7,966-8,895 feet)

Land Form: Montane bench, hillside, and mountain top - route proceeds through *Pinus ponderosa* grassland, along dry bench of *Chrysothamnus viscidiflorus* var. *lanceolatus*, *Ceanothus fendleri*, and *Bouteloua gracilis*, and up steep hillside into open woods of *Pinus ponderosa* and *Pseudotsuga menziesii*. An additional section was located along the top edge of Eagle Cliffs in rocky outcroppings and through *Pinus ponderosa* grassland.

Major butterfly species: *Pontia protodice*, *Glaucopsyche lygdamus*, *Euptoieta claudia*, *Phyciodes cocyta*, *Phyciodes pratensis*, *Vanessa atalanta*, *Vanessa cardui*, *Cercyonis oetus*, *Oarisma garita*

Transect: EIT - East Inlet Trail

Elevation: 2,604-2,610 meters (8,540-8,560 feet)

Land Form: Montane stream valley - route proceeds along the edge of a marsh with *Salix* then through a *Pinus contorta* and *Populus tremuloides* woods.

Major butterfly species: *Anthocharis julia*, *Celastrina ladon*

Transect: EVE - Endovalley Elk

Elevation: 2,610-2,616 meters (8,560-8,580 feet)

Land Form: Montane stream valley - route proceeds through a *Salix* bog, lakeside meadow, and a *Carex-Juncus* bog.

Major butterfly species: *Coenonympha tullia ochracea*

Transect: FLT - Fern Lake Trail

Elevation: 2,489-2,515 meters (8,165-8,250 feet)

Land Form: Montane stream canyon - route proceeds along a south-facing slope through open woods of *Picea pungens*, *Pinus contorta*, *Pinus ponderosa*, *Pseudotsuga menziesii*, *Populus tremuloides*, and *Padus virginiana*.

Major butterfly species: *Papilio eurymedon*, *Pontia protodice*, *Pieris marginalis*, *Euchloe ausonides*, *Callophrys eryphon*, *Celastrina ladon*, *Glaucopsyche lygdamus*, *Plebejus lupini*, *Chlosyne nycteis*, *Phyciodes cocyta*, *Phyciodes pratensis*, *Speyeria hesperis*, *Polygonia faunus*, *Polygonia gracilis*, *Nymphalis antiopa*, *Vanessa cardui*, *Limenitis weidemeyerii*, *Coenonympha tullia ochracea*, *Erynnis persius*, *Hesperia colorado*, *Amblyscirtes vialis*

Transect: FTP - Flattop

Elevation: 3,653-3,704 meters (12,055-12,223 feet)

Land Form: Alpine tundra - route proceeds along top edge of the north slope of a rocky glacial basin at the edge of occasional fellfields and an east-facing slope of alpine tundra with a turf of *Kobresia myosuroides*.

Major butterfly species: *Pontia protodice*, *Pontia occidentalis*, *Colias eurytheme*, *Colias meadii*, *Plebejus shasta*, *Chlosyne whitneyi*, *Euphydryas chalcedona*, *Vanessa cardui*, *Speyeria mormonia*, *Erebia magdalena*, *Oeneis melissa*

Transect: FRH - Fall River Headwaters

Elevation: 3,422-3,573 meters (11,290-11,720 feet)

Land Form: Glacial basin - route proceeds down a south-facing slope through krummholz and across *Salix* bog, then up a north-facing slope along a small alpine snow-fed stream into a rocky cirque.

Major butterfly species: *Parnassius smintheus*, *Pontia occidentalis*, *Colias meadii*, *Plebejus shasta*, *Boloria chariclea*, *Oeneis melissa*

Transect: HPE - Horseshoe Park Elk

Elevation: 2,596-2,601 meters (8,515-8,530 feet)

Land Form: Montane meandering river valley - route proceeds through a *Salix* meadow.

Major butterfly species: *Colias alexandra*

Transect: KVV - Kawuneeche Valley

Elevation: 2,683-2,692 meters (8,800-8,831 feet)

Land Form: Montane river valley - route proceeds through a *Salix* bog, an abandoned hay meadow, and through a stand of *Pinus contorta*.

Major butterfly species: *Pieris marginalis*, *Colias philodice*, *Plebejus saepiolus*, *Boloria frigga*, *Boloria freija*, *Vanessa cardui*

Transect: LAV - Lava Cliffs

Elevation: 3,707-3,764 meters (12,233-12,362 feet)

Land Form: Alpine tundra - route proceeds along the top edge of Lava Cliffs, then across fractured rhyolite tuff and along the top edge of the Fall River glacial cirque through alpine vegetation and *Kobresia* turf.

Major butterfly species: *Parnassius smintheus*, *Pontia occidentalis*, *Colias meadii*, *Euptoieta claudia*, *Vanessa milberti*, *Vanessa cardui*, *Erebia magdalena*, *Oeneis melissa*

Transect: LOG - Lookout Mountain Global

Elevation: 2,841-3,201 meters (9,320-10,500 feet)

Land Form: Montane mountain side - route proceeds up a south-facing slope through a woods of *Pinus contorta*, *Pseudotsuga menziesii*, and *Populus tremuloides*

Major butterfly species: not enough surveys done

Transect: LYT - Lily Lake Trail

Elevation: 2,732-2,744 meters (8,960-9,000 feet)

Land Form: Montane lake - route proceeds through a *Salix* bog, into a woods of *Picea engelmannii*, *Pinus contorta*, and *Pseudotsuga menziesii*, then through a lake marsh edge into a hillside meadow.

Major butterfly species: not enough surveys done

Transect: MGF - MacGregor Falls

Elevation: 2,476-2,561 meters (8,120-8,400 feet)

Land Form: Montane stream canyon - route proceeds through an open *Pinus ponderosa* woods and along a cascading stream with *Populus tremuloides*, and *Alnus incana*.

Major butterfly species: *Parnassius smintheus*, *Papilio rutulus*, *Neophasia menapia*, *Pontia protodice*, *Euchloe ausonides*, *Colias philodice*, *Colias eurytheme*, *Colias alexandra*, *Callophrys affinis*, *Callophrys augustinus*, *Callophrys polios*, *Callophrys eryphon*, *Celastrina ladon*, *Glaucopsyche lygdamus*, *Agriades glandon*, *Plebejus icarioides*, *Speyeria edwardsii*, *Speyeria atlantis*, *Chlosyne palla*, *Phyciodes coccyta*, *Phyciodes pratensis*, *Polygonia faunus*, *Polygonia gracilis*, *Nymphalis antiopa*, *Vanessa cardui*, *Limenitis weidemeyerii*, *Coenonympha tullia ochracea*, *Cercyonis oetus*, *Oeneis chryxus*

Transect: MOP - Moraine Park

Elevation: 2,447-2,474 meters (8,025-8,115 feet)

Land Form: Montane meandering stream valley - route proceeds down a *Carex-Juncus* seep into an abandoned hay meadow.

Major butterfly species: not enough surveys done

Transect: MPE - Moraine Park Elk
Elevation: 2,462-2,512 meters (8,075-8,240 feet)
Land Form: Montane meandering stream valley - route proceeds through a *Salix* thicket.
Major butterfly species: not enough surveys done

Transect: POD - Cache la Poudre River
Elevation: 3,248-3,270 meters (10,655-10,726 feet)
Land Form: Subalpine stream valley - route proceeds below the continental divide along a stream edge through a *Salix* bog.
Major butterfly species: *Parnassius smintheus*, *Pontia protodice*, *Pontia occidentalis*, *Pieris marginalis*, *Colias scudderi*, *Agriades glandon*, *Plebejus saepiolus*, *Euptoieta claudia*, *Speyeria mormonia*, *Boloria eunomia*, *Boloria freija*, *Boloria chariclea*, *Vanessa cardui*, *Erebia callias*, *Erebia epipsodea*, *Pyrgus centaureae*

Transect: SBT - Sandbeach Lake Trail
Elevation: 2,549-2,658 meters (8,360-8,720 feet)
Land Form: Montane south slope - route proceeds across an open hillside woods of *Pinus ponderosa*, *Populus tremuloides*.
Major butterfly species: *Parnassius smintheus*, *Euchloe ausonides*, *Callophrys eryphon*, *Euphilotes ancilla*, *Oeneis chryxus*, *Erynnis persius*

Transect: SMD - Shadow Mountain Dam
Elevation: 2,554-2,596 meters (8,378-8,515 feet)
Land Form: Montane intermittent stream valley - route proceeds up a valley into a wet meadow, a *Salix* bog and a *Pentaphylloides floribunda* bench.
Major butterfly species: *Pontia protodice*, *Pieris marginalis*, *Euchloe ausonides*, *Anthocharis julia*, *Colias philodice*, *Colias eurytheme*, *Colias scudderi*, *Lycaena rubidus*, *Lycaena heteronea*, *Lycaena helloides*, *Callophrys spinetorum*, *Callophrys eryphon*, *Glaucopsyche lygdamus*, *Agriades glandon*, *Plebejus saepiolus*, *Plebejus icarioides*, *Euptoieta claudia*, *Speyeria mormonia*, *Boloria bellona*, *Boloria freija*, *Phyciodes cocyta*, *Phyciodes pratensis*, *Polygonia faunus*, *Vanessa cardui*, *Limenitis weidemeyerii*, *Coenonympha tullia ochracea*, *Cercyonis oetus*, *Erebia epipsodea*, *Oarisma garita*, *Polites draco*, *Polites sonora*

Transect: SUP - Summerland Park
Elevation: 2,591-2,622 meters (8,500-8,600 feet)
Land Form: Montane stream valley - route proceeds through a woods of *Pinus contorta*, *Populus tremuloides* and *Shepherdia canadensis* ending at the top of a *Salix* marsh.
Major butterfly species: *Pontia protodice*, *Pieris marginalis*, *Euchloe ausonides*, *Colias eurytheme*, *Callophrys eryphon*, *Plebejus saepiolus*, *Speyeria mormonia*, *Boloria freija*, *Polygonia faunus*, *Nymphalis antiopa*, *Nymphalis milberti*, *Vanessa cardui*, *Erebia epipsodea*, *Oarisma garita*

Transect: TSM - Toll Memorial-Sundance Mountain

Elevation: 3,692-3,771 meters (12,110-12,370 feet)

Land Form: Alpine saddle - route proceeds across a saddle with wet pea gravel, *Koenigietum islandicae* association, and up a southwest facing fellfield slope.

Major butterfly species: *Colias meadii*

Transect: WBT - Wild Basin Trail

Elevation: 2,598-2,668 meters (8,520-8,750 feet)

Land Form: Montane stream canyon - route proceeds up a canyon through an open woods of *Picea pungens*, *Pinus contorta*, and *Populus tremuloides* and then along a cascading streamside.

Major butterfly species: *Pontia protodice*, *Pieris marginalis*, *Pieris rapae*, *Euchloe ausonides*, *Colias eurytheme*, *Colias alexandra*, *Lycaena rubidus*, *Lycaena heteronea*, *Lycaena helloides*, *Callophrys eryphon*, *Celastrina ladon*, *Glaucopsyche lygdamus*, *Agriades glandon*, *Plebejus saepiolus*, *Euptoieta claudia*, *Speyeria edwardsii*, *Vanessa cardui*, *Polygonia faunus*, *Polygonia gracilis*, *Coenonympha tullia ochracea*, *Cercyonis oetus*

Transect: WIP - Willow Park

Elevation: 3,220-3,265 meters (10,560-10,710 feet)

Land Form: Subalpine stream valley - route proceeds through a *Salix* bog and down stream into a *Carex* meadow, then through open woods of *Abies lasiocarpa* and *Picea engelmannii*.

Major butterfly species: *Pieris marginalis*, *Colias scudderi*, *Lycaena helloides*, *Agriades glandon*, *Euptoieta claudia*, *Speyeria mormonia*, *Boloria chariclea*

Butterflies of Rocky Mountain National Park

September 30, 2002 (revised 10/5/04)

Compiled by Dr. Paul A. Opler, Professor,
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Nomenclature follows The North American Butterfly Association
Checklist and English Names of North American Butterflies. 1995
Emendations necessitated by recent changes in butterfly taxonomy and species
concepts as published in revised Peterson Field Guide to Western Butterflies.
(Opler 1999).

NOTE: This list does not reflect current taxonomy or scientific name changes,
see Opler and Warren 2002. Those changes will be made in the database at the
end of the project. Names listed below will continue to be used in fieldbooks.
(R.O.B.)

SWALLOWTAIL FAMILY

FMP CODE

Rocky Mountain Parnassian (<i>Parnassius smintheus</i>)	PARSMI
Eastern Black Swallowtail (<i>Papilio polyxenes</i>)	PAPPOL
*Old World Swallowtail (<i>Papilio machaon bairdii</i>)	PAPMAC
Anise Swallowtail (<i>Papilio zelicaon</i>)	PAPZEL
Western Tiger Swallowtail (<i>Papilio rutulus</i>)	PAPRUT
Pale Swallowtail (<i>Papilio eurymedon</i>)	PAPEUR
Two-tailed Swallowtail (<i>Papilio multicaudata</i>)	PAPMUL

WHITE AND SULFUR FAMILY

Pine White (<i>Neophasia menapia</i>)	NEOMEN
Becker's White (<i>Pontia beckerii</i>)	PONBEC
Spring White (<i>Pontia sisymbrii</i>)	PONSIS
Checkered White (<i>Pontia protodice</i>)	PONPRO
Western White (<i>Pontia occidentalis</i>)	PONOCC
Margined White (<i>Pieris marginalis</i>)	PIEMAR
Cabbage White (<i>Pieris rapae</i>)	PIERAP
Large Marble (<i>Euchloe ausonides</i>)	EUCAUS
Olympia Marble (<i>Euchloe olympia</i>)	EUCOLY
Southern Rocky Mountain Orange-tip (<i>Anthocharis julia</i>)	ANTJUL
Clouded Sulphur (<i>Colias philodice</i>)	COLPHI
Orange Sulphur (<i>Colias eurytheme</i>)	COLEUR
Alexandra's Sulphur (<i>Colias alexandra</i>)	COLALE
Mead's Sulphur (<i>Colias meadii</i>)	COLMEA
Scudder's Sulphur (<i>Colias scudderii</i>)	COLSCU
Southern Dogface (<i>Zerene cesonia</i>)	ZERCES
Mexican Yellow (<i>Eurema mexicana</i>)	EURMEX
Sleepy Orange (<i>Eurema nicippe</i>)	EURNIC
Dainty Sulphur (<i>Nathalis iole</i>)	NATIOL

GOSSAMER WING FAMILY

Lustrous Copper (<i>Lycaena cupreus</i>)	LYCCUP
Ruddy copper (<i>Lycaena rubidus</i>)	LYCRUB
Blue Copper (<i>Lycaena heteronea</i>)	LYCHET

Purplish Copper (<i>Lycaena helloides</i>)	LYCHEL
Behr's Hairstreak (<i>Satyrium behrii</i>)	SATBEH
California Hairstreak (<i>Satyrium californica</i>)	SATCAL
Coral Hairstreak (<i>Satyrium titus</i>)	SATTIT
Bramble Hairstreak (<i>Callophrys affinis</i>)	CALAFF
Sheridan's Hairstreak (<i>Callophrys sheridanii</i>)	CALSHE
Thicket Hairstreak (<i>Callophrys spinetorum</i>)	CALSPI
Juniper Hairstreak (<i>Callophrys gryneus</i>)	CALGRY
Brown Elfin (<i>Callophrys augustinus</i>)	CALAUG
*Moss' Elfin (<i>Callophrys mossii</i>)	CALMOS
Hoary Elfin (<i>Callophrys polios</i>)	CALPOL
Western Pine Elfin (<i>Callophrys eryphon</i>)	CALERY
Gray Hairstreak (<i>Strymon melinus</i>)	STRMEL
Marine Blue (<i>Leptotes marina</i>)	LEPMAR
Reakirt's Blue (<i>Hemiargus isola</i>)	HEMISO
Eastern Tailed-Blue (<i>Everes comyntas</i>)	EVECOM
Western Tailed-Blue (<i>Everes myntula</i>)	EVEAMY
Spring Azure (<i>Celastrina ladon</i>)	CELLAD
Rocky Mountain Blue (<i>Euphilotes ancilla</i>)	EUPANC
Arrowhead Blue (<i>Glaucopsyche piasus</i>)	GLAPIA
Silvery Blue (<i>Glaucopsyche lygdamus</i>)	GLALYG
Arctic Blue (<i>Agriades glandon</i>)	AGRGLA
Melissa Blue (<i>Lycaeides melissa</i>)	LYCMEL
Greenish Blue (<i>Plebejus saepiolus</i>)	PLESAE
Mountain Blue (<i>Plebejus icarioides</i>)	PLEICA
Shasta Blue (<i>Plebejus shasta</i>)	PLESHA
Lupine Blue (<i>Plebejus lupini</i>)	PLELUP

BRUSHFOOT FAMILY

*Gulf Fritillary (<i>Agraulis vanillae</i>)	AGRVAN
Variegated Fritillary (<i>Euptoieta claudia</i>)	EUPCLA
Aphrodite Fritillary (<i>Speyeria aphrodite</i>)	SPEAPH
Edwards' Fritillary (<i>Speyeria edwardsii</i>)	SPEEDW
Coronis Fritillary (<i>Speyeria coronis</i>)	SPECOR
Zerene Fritillary (<i>Speyeria zerene</i>)	SPEZER
Callippe Fritillary (<i>Speyeria callippe</i>)	SPECAL
**Great Basin Fritillary (<i>Speyeria egleis</i>)	SPEEGL
Atlantis Fritillary (<i>Speyeria atlantis</i>)	SPEATL
Northwestern Fritillary (<i>Speyeria hesperis</i>)	SPEHES
Mormon Fritillary (<i>Speyeria mormonia</i>)	SPEMOR
Bog Fritillary (<i>Boloria eunomia</i>)	BOLEUN
Silver-bordered Fritillary (<i>Boloria selene</i>)	BOLSEL
Meadow Fritillary (<i>Boloria bellona</i>)	BOLBEL
Frigga Fritillary (<i>Boloria frigga</i>)	BOLFRI
Freija Fritillary (<i>Boloria freija</i>)	BOLFRE
Arctic Fritillary (<i>Boloria chariclea</i>)	BOLCHA
Dotted Checkerspot (<i>Poladryas minuta arachne</i>)	POLARA
Gorgone Checkerspot (<i>Chlosyne gorgone</i>)	CHLGOR
Silvery Checkerspot (<i>Chlosyne nycteis</i>)	CHLNYC
Northern Checkerspot (<i>Chlosyne palla</i>)	CHLPAL
Rockslide Checkerspot (<i>Chlosyne whitneyi</i>)	CHLWHI
Northern Crescent (<i>Phyciodes cocyta</i>)	PHYCOC
Bates' Crescent (<i>Phyciodes batesii</i>)	PHYBAT
Field Crescent (<i>Phyciodes pratensis</i>)	PHYPRA
Pale Crescent (<i>Phyciodes pallida</i>)	PHYPAL
Variable Checkerspot (<i>Euphydryas chalcedona</i>)	EUPCHA
Satyr Comma (<i>Polygonia satyrus</i>)	POLSAT
Green Comma (<i>Polygonia faunus</i>)	POLFAU
Hoary Comma (<i>Polygonia gracilis</i>)	POLGRA
Gray Comma (<i>Polygonia oreas nigrozephyrus</i>)	POLORE
***California Tortoiseshell (<i>Nymphalis californica</i>)	NYMCAL
Mourning Cloak (<i>Nymphalis antiopa</i>)	NYMANT
Milbert's Tortoiseshell (<i>Nymphalis milberti</i>)	NYMMIL

Red Admiral (<i>Vanessa atalanta</i>)	VANATA
American Lady (<i>Vanessa virginiensis</i>)	VANVIR
Painted Lady (<i>Vanessa cardui</i>)	VANCAR
West Coast Lady (<i>Vanessa annabella</i>)	VANANN
Common Buckeye (<i>Junonia coenia</i>)	JUNCOE
Weidemeyer's Admiral (<i>Limenitis weidemeyerii</i>)	LIMWEI
Canyonland Satyr (<i>Cyllopsis pertepida</i>)	CYLPER
Ochre Ringlet (<i>Coenonympha tullia ochracea</i>)	COETUL
Common Wood-Nymph (<i>Cercyonis pegala</i>)	CERPEG
Small Wood-Nymph (<i>Cercyonis oetes</i>)	CEROET
Magdalena Alpine (<i>Erebia magdalena</i>)	EREMAG
Callias Alpine (<i>Erebia callias</i>)	ERECAL
Common Alpine (<i>Erebia epipsodea</i>)	EREEPI
Ridings' Satyr (<i>Neominois ridingsii</i>)	NEORID
Chryxus Arctic (<i>Oeneis chryxus</i>)	OENCHR
Uhler's Arctic (<i>Oeneis uhleri</i>)	OENUHL
Melissa Arctic (<i>Oeneis melissa</i>)	OENMEL
Monarch (<i>Danaus plexippus</i>)	DANPLE
***Queen (<i>Danaus gilippus</i>)	DANGIL

SKIPPER FAMILY

Silver-spotted Skipper (<i>Epargyreus clarus</i>)	EPACLA
Mexican Cloudywing (<i>Thorybes mexicanus</i>)	THOMEX
Dreamy Duskywing (<i>Erynnis icelus</i>)	ERYICE
Pacuvius Duskywing (<i>Erynnis pacuvius</i>)	ERYPAC
Funereal Duskywing (<i>Erynnis funeralis</i>)	ERYFUN
Persius Duskywing (<i>Erynnis persius</i>)	ERYPER
Grizzled Skipper (<i>Pyrgus centaureae</i>)	PYRCEN
Two-banded Checkered-Skipper (<i>Pyrgus ruralis</i>)	PYRRUR
Common Checkered-Skipper (<i>Pyrgus communis</i>)	PYRCOM
Common Sootywing (<i>Pholisora catullus</i>)	PHOCAT
Russet Skipperling (<i>Piruna pirus</i>)	PIRPIR
Garita Skipperling (<i>Oarisma garita</i>)	OARGAR
Morrison's Skipper (<i>Stinga morrisoni</i>)	STIMOR
Uncas Skipper (<i>Hesperia uncas</i>)	HESUNC
Juba Skipper (<i>Hesperia juba</i>)	HESJUB
Western Branded Skipper (<i>Hesperia colorado</i>)	HESCOL
Nevada Skipper (<i>Hesperia nevada</i>)	HESNEV
Sachem (<i>Atalopedes campestris</i>)	ATACAM
Draco Skipper (<i>Polites draco</i>)	POLDRA
Tawny-edged Skipper (<i>Polites themistocles</i>)	POLTHE
Long Dash (<i>Polites mystic</i>)	POLMYS
Sonoran Skipper (<i>Polites sonora</i>)	POLSON
Woodland Skipper (<i>Ochloides sylvanoides</i>)	OCHSYL
Taxiles Skipper (<i>Poanes taxiles</i>)	POATAX
Snow's Skipper (<i>Paratrytone snowi</i>)	PARSNO
Dun Skipper (<i>Euphyes vestris</i>)	EUPVES
Bronze Roadside-Skipper (<i>Amblyscirtes aenus</i>)	AMBAEN
Common Roadside-Skipper (<i>Amblyscirtes vialis</i>)	AMBVIA

*Species recorded by John and Grace Sperry in Rocky Mountain National Park (1929-1931), but specimens not seen (possibly in American Museum of Natural History).

**Type locality purportedly in the park, but probably erroneous

***Species recorded by Phillip C. Ritterbush in Rocky Mountain National Park (1955-1956), but specimens not seen.

Butterflies whose occurrence may be expected in the park:

Indra Swallowtail (*Papilio indra*)
 Cloudless Sulphur (*Phoebis sennae*)
 Lilac-edged Copper (*Lycaena nivalis*)
 Edith's Copper (*Lycaena editha*)

Bronze Copper (*Lycaena hyllus*)
Striped Hairstreak (*Satyrium liparops*)
Sylvan Hairstreak (*Satyrium sylvinus*)
Great-spangled Fritillary (*Speyeria cybele*)
Regal Fritillary (*Speyeria idalia*)
Hydaspe Fritillary (*Speyeria hydaspe*)
Sagebrush Checkerspot (*Chlosyne acastus*)
Edith's Checkerspot (*Euphydryas editha*)
Compton Tortoiseshell (*Nymphalis vau-album*)
Viceroy (*Limenitis archippus*)
Theano Alpine (*Erebia theano*)
Jutta Arctic (*Oeneis jutta*)
Northern Cloudywing (*Thorybes pylades*)
Martial Duskywing (*Erynnis martialis*)
Afranius Duskywing (*Erynnis afranius*)
Pahaska Skipper (*Hesperia pahaska*)
Oslar's Roadside Skipper (*Amblyscirtes oslari*)

Reported erroneously from the park:

White-veined Arctic (*Oeneis bore*)

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SPECIES ADDED TO PAUL A. OPLER'S RMNP LIST IN 2004

Oeneis uhleri

Stephanie Mason

June 2 2004 Elevation 8388 feet

Shadow Mountain Dam route, Section A

This is the first confirmed record of this species in the Park. A specimen was erroneously reported in 2001 as being in the AMNH collected by John and Grace Sperry at Sprague's VI-24-31.

That specimen is *O. chryxus* and is pictured in the Species Database with examples of *O. uhleri*, *O. alberta* and *O. chryxus* for comparison.

Colorado State Late Dates from RMNP

September 28, 2004

P. sminthius, September 30, 2001, S. L. Mason, Alpine Visitor's Center Trail, Larimer County, RMNP

P. rutulus, September 6, 2004, R. Bray, Cow Creek Trail route, Larimer County RMNP

N. menapia, October 6, 1999, R. O. Bray, Lily Lake, Larimer County, RMNP

E. ausonides, August 23, 1999, S. L. Mason, Cache la Poudre route, Larimer County, RMNP

C. alexandra, October 20, 2001, Taffy A. Wardo, Moraine Park, Larimer County, RMNP (could this sighting have been a philodice)

L. rubidus, September 5, 1998, Lynn and Gene Monroe, Black Canyon Trail foot bridge, Larimer County, RMNP

P. lupini, August 27, 1999, P. M. Edwards, Lava Cliffs route, Larimer County, RMNP, elevation 12,275 feet

S. atlantis, west side, August 30, 1999, R. Bray, East Shore Trail, Grand County, RMNP

S. atlantis, east side, August 23, 1999, R. Bray, Cow Creek Meadow route, Larimer County, RMNP

B. bellona, September 7, 1999, R. Bray, Shadow Mountain Dam route, Grand County, RMNP

N. wyomingo, September 16, 2001, S. L. Mason, September 16, 2002 Lynn and Gene Monroe Eagle Cliffs, Larimer County, RMNP

A. vialis, August 11, 2003, S. L. Mason, Shadow Mountain Dam route, Grand County, RMNP

Colorado State Early Dates from RMNP

S. atlantis, east side, July 10, 2001, R. Bray, Cow Creek Meadow route, Larimer County, RMNP (This early date is the result of the species split in 1998 and will soon be replaced by lower elevation early dates)

B. frigga, June 3, 2000, S. L. Mason, Kawuneeche Valley route, Grand County, RMNP

Rocky Mountain Butterfly Project Preliminary Totals

	A	B	C	D	E	F	G	H	I	J	K	L
1	VOLUNTEER HOURS	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
2	MAY	226	460	332	348	469	531	436	572	516		
3	JUNE	640	463	572	563	635	882	618	720	877		
4	JULY	531	438	721	539	729	681	875	686	707		
5	AUGUST	239	385	489	519	687	595	714	725	528		
6	SEPTEMBER	155	294	273	366	276	319	292	240	257		
7	SEASON HOURS	1831	2040	2387	2335	2796	3008	3227	2943	2885		
8	TOTAL TO DATE	1831	3871	6258	8593	11389	14397	17624	20567	23452		
9												
10	VOLUNTEERS	5	8	10	11	14	14	23	23	20		
11												
12	ROUTES RUN	115	204	163	169	242	276	262	239	276		
13												
14	SPECIES SEEN	83	105	108	107	110	114	106	103	105		
15												
16	MAJOR SPECIES	28	34	40	46	50	50	49	50	34		
17	MAJOR SPECIES TOTAL	28	40	50	62	69	71	73	74	75		

Observations

A = abundant A = alpine
C = common S = subalpine
U = uncommon m = montane
R = rare

DRAFT
10/18/04

[illegible]

Observations

A = abundant A = alpine
C = common S = subalpine
U = uncommon m = montane
R = rare

DRAFT
10/18/04

[illegible]

Observations

A = abundant A = alpine
C = common S = subalpine
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DRAFT
10/18/04

[illegible]

Observations

A = abundant A = alpine
C = common S = subalpine
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DRAFT
10/18/04

[illegible]

Observations

A = abundant A = alpine
C = common S = subalpine
U = uncommon m = montane
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DRAFT
10/18/04

				A = abundant A = alpine C = common S = subalpine U = uncommon m = montane R = rare																								
	East Side	West Side	Zones Seen	Weeks	May 1-7	May 8-14	May 15-21	May 22-28	May 29-June 4	June 5-11	June 12-18	June 19-25	June 26-July 2	July 3-9	July 10-16	July 17-23	July 24-30	Jul 31-Aug 6	Aug 7-13	Aug 14-20	Aug 21-27	Aug 28-Sept 3	Sept 4-10	Sept 11-17	Sept 18-24	Sept 25-Oct 1	Oct 2-8	Oct 9-15
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Atlantis Fritillary <i>Speyeria atlantis</i>	C	U	M,S										X	X	X	X	X	X	X	X	X							
Northwestern Fritillary <i>Speyeria hesperis</i>	A	U	M,S									X	X	X	X	X	X	X	X	X	X	X	X					
Mormon Fritillary <i>Speyeria mormonia</i>	U	A	M,S,A								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
Bog Fritillary <i>Boloria eunomia</i>	U	U	M,S										X	X	X	X	X	X	X	X								
Silver-bordered Fritillary <i>Boloria selene</i>	R	U	M								X	X	X	X	X	X	X											
Meadow Fritillary <i>Boloria bellona</i>	R	C	M					X	X	X	X	X	X	X	X			X	X	X	X	X	X					
Frigga Fritillary <i>Boloria frigga</i>		U	M,S					X	X	X	X	X		X														
Freija Fritillary <i>Boloria freija</i>		C	M,S	X	X	X	X	X	X	X	X	X	X	X	X	X												
Arctic Fritillary <i>Boloria chariclea</i>	C		S,A										X	X	X	X	X	X	X	X	X	X	X					
Dotted Checkerspot <i>Poladryas arachne</i>	U		M									X	X	X	X	X	X	X	X	X	X	X	X	X				
Gorgone Checkerspot <i>Chlosyne gorgone</i>	R		M														X											
Silvery Checkerspot <i>Chlosyne nycteis</i>	C		M					X	X	X	X	X	X	X	X	X	X	X										
Northern Checkerspot <i>Chlosyne palla</i>	C		M					X	X	X	X	X	X	X	X	X	X	X	X	X								
Rockslide Checkerspot <i>Chlosyne whitneyi</i>	C		A												X	X	X	X	X									
Northern Crescent <i>Phyciodes cocyta</i>	C	C	M						X	X	X	X	X	X	X	X	X	X	X	X								
Bates' Crescent <i>Phyciodes batesii</i>		R	M																									

Rocky Mountain National Park Butterfly Project

Phenology using Historic and 1999-2004

Observations

DRAFT
10/18/04

Surveys usually conducted May 1- Sept 17
Scientific names of 74 major species in bold

A = abundant A = alpine
C = common S = subalpine
U = uncommon m = montane
R = rare

A = abundant		A = alpine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Observations

A = abundant A = alpine
C = common S = subalpine
U = uncommon m = montane
R = rare

DRAFT
10/18/04

[illegible]

Observations

A = abundant A = alpine
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Observations

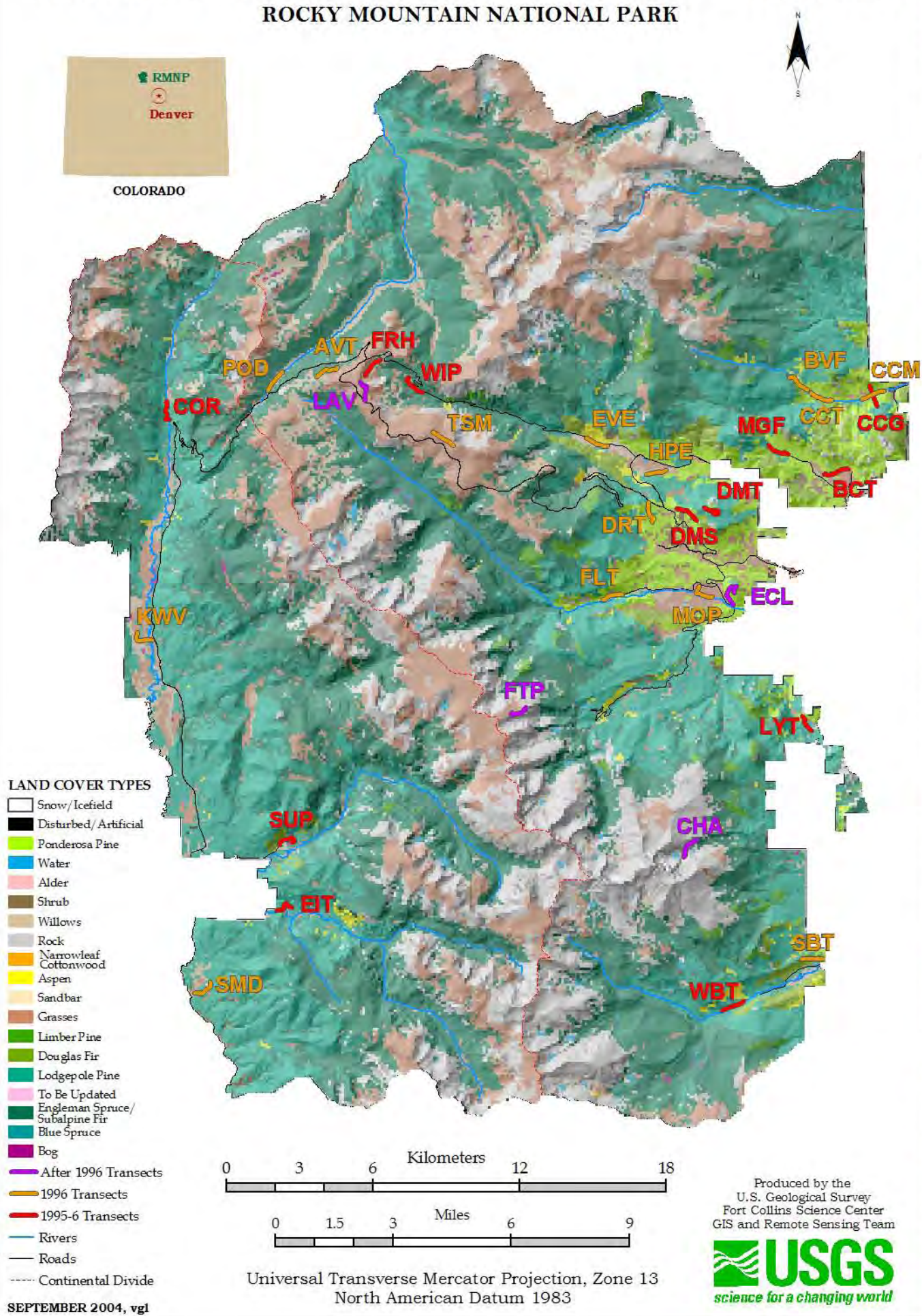
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ROCKY MOUNTAIN BUTTERFLY PROJECT

ROCKY MOUNTAIN NATIONAL PARK



PROJECT BACKGROUND

The Rocky Mountain National Park Butterfly Project is designed to provide baseline data on butterflies chosen to represent the "forgotten" 90% or more of the world's fauna: invertebrates. Butterflies are highly visible and sensitive to ecological change through all stages of their life cycle: egg, caterpillar, chrysalis and adult. The project will provide data for ten years showing annual population fluctuations. Replication of the study in the future, when compared to the final multi-year baseline, will show long-term trends in the relative abundance of species populations on those transects. This information is not presently available for the insect component of the park's fauna. As such, it is a meaningful addition to Park research designed to monitor ecological change in the Park's environment.

PROJECT DESCRIPTION

Kilometer-long transects are surveyed for butterflies from the first week in May through mid-September for ten years using the protocol described in *Monitoring Butterflies for Ecology and Conservation*, Pollard and Yates, Chapman and Hall, London, 1993. This data will create ten-year baseline indices of abundance for major Rocky Mountain National Park butterfly species. To allow replication of the transects, each transect is located using Global Positioning System technology. The Universal Transverse Mercator coordinates of each transect are stored in a Geographic Information System using the North American Datum of 1983.

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TRANSECTS:

AVT - ALPINE VISITOR CENTER TRAIL

Elevation: 3,512-3,532 meters (11,518-11,585 feet)
Land Form: Alpine Slope - route proceeds along a snowbank terrace of *Deschampsia caespitosa* into krummholz of *Abies lasiocarpa* and *Picea engelmannii*.
Major Butterfly Species: *Parnassius smintheus*, *Pontia protodice*, *Colias eurytheme*, *Colias alexandria*, *Colias meadii*, *Agriades glandon*, *Speyeria mormonia*, *Boloria chariclea*, *Nymphalis milberti*, *Vanessa cardui*, *Erebia callias*, *Pyrgus antaureas*, *Polites draco*

BCT - BLACK CANYON TRAIL

Elevation: 2,354-2,415 meters (7,720-7,920 feet)
Land Form: Montane bench - route proceeds across bench of *Bouteloua gracilis*, *Artemisia frigida*, *Ribes cereum*, and *Pentstemon* and through several intermittent stream gullies of *Populus tremuloides*.
Major Butterfly Species: *Pontia protodice*, *Colias eurytheme*, *Lycana rubidus*, *Lycana heteronea*, *Sagittaria californica*, *Agriades glandon*, *Plebejus iacinois*, *Polidryas arachne*, *Chlosyne palla*, *Vanessa cardui*, *Coenonympha tullia ochracea*, *Ceryx otus*, *Oarisma garita*, *Hesperia colorado*

BVF - BRIDAL VEIL FALLS

Elevation: 2,596-2,695 meters (8,515-8,840 feet)
Land Form: Montane stream canyon - route proceeds through an open woods of *Pinus ponderosa* and along a cascading stream with *Populus tremuloides* and *Alnus incana*.
Major Butterfly Species: *Colias alexandria*, *Callophrys eryphon*, *Callophrys polios*, *Celastrina ladon*, *Agriades glandon*, *Polygona gracilis*, *Nymphalis antiopa*, *Nymphalis milberti*, *Vanessa cardui*, *Coenonympha tullia ochracea*, *Oeneis chryxus*, *Erynnis persius*

CCG - COW CREEK GLOBAL

Elevation: 2,427-2,561 meters (7,960-8,400 feet)
Land Form: Montane stream valley - route proceeds down a dry south-facing slope with *Pinus ponderosa*, *Juniperus scopulorum*, across a valley and up a north-facing slope of *Picea engelmannii*, *Picea pungens*, and *Pseudotsuga menziesii*.
Major Butterfly Species: *Callophrys geyneus*

CCM - COW CREEK MEADOW

Elevation: 2,401-2,470 meters (7,875-8,100 feet)
Land Form: Montane stream valley - route proceeds through a meadow into a streamside woods of *Picea pungens*, *Pseudotsuga menziesii*, and *Populus tremuloides*.
Major Butterfly Species: *Parnassius smintheus*, *Papilio rutulus*, *Pontia protodice*, *Neophania menapia*, *Colias eurytheme*, *Colias alexandria*, *Callophrys polios*, *Celastrina ladon*, *Euphiletas analla*, *Glaucopteryx hydamus*, *Agriades glandon*, *Plebejus iacinois*, *Plebejus iacinois*, *Speyeria edwardii*, *Speyeria atlantis*, *Speyeria heperis*, *Chlosyne nycteis*, *Phyciodes coqta*, *Phyciodes pratensis*, *Polygona faunus*, *Polygona gracilis*, *Vanessa atalanta*, *Vanessa cardui*, *Coenonympha tullia ochracea*, *Ceryx otus*, *Oeneis chryxus*, *Erynnis icelus*, *Erynnis persius*, *Pinus pinus*, *Oarisma garita*, *Hesperia colorado*, *Polites draco*, *Ochloides sylvanoides*

CCT - COW CREEK TRAIL

Elevation: 2,500-2,561 meters (8,200-8,400 feet)
Land Form: Montane stream valley - route proceeds along a stream through a *Populus tremuloides* meadow.
Major Butterfly Species: *Papilio rutulus*, *Euphiletas analla*, *Anthocharis julia*, *Pontia protodice*, *Colias eurytheme*, *Colias alexandria*, *Callophrys eryphon*, *Celastrina ladon*, *Glaucopteryx hydamus*, *Agriades glandon*, *Plebejus iacinois*, *Plebejus iacinois*, *Speyeria edwardii*, *Speyeria atlantis*, *Speyeria heperis*, *Chlosyne nycteis*, *Phyciodes coqta*, *Phyciodes pratensis*, *Polygona faunus*, *Polygona gracilis*, *Vanessa atalanta*, *Vanessa cardui*, *Coenonympha tullia ochracea*, *Ceryx otus*, *Oeneis chryxus*, *Erynnis persius*, *Hesperia colorado*

CHA - CHASM LAKE TRAIL

Elevation: 3,534-3,553 meters (11,662-11,725 feet)
Land Form: Rocky alpine slope and wet meadow - route proceeds across a steep, rocky, south-east facing hillside of *Pentstemon* and *Phlox*, with krummholz of *Abies lasiocarpa*, *Picea engelmannii*, *Pinus flexilis* then through boulder slides into an alpine *Carex* meadow.
Major Butterfly Species: *Parnassius smintheus*, *Colias meadii*, *Plebejus iacinois*, *Plebejus iacinois*, *Speyeria edwardii*, *Speyeria atlantis*, *Speyeria heperis*, *Chlosyne nycteis*, *Phyciodes coqta*, *Phyciodes pratensis*, *Polygona faunus*, *Polygona gracilis*, *Vanessa atalanta*, *Vanessa cardui*, *Coenonympha tullia ochracea*, *Ceryx otus*, *Oeneis chryxus*, *Erynnis persius*, *Hesperia colorado*

COR - COLORADO RIVER

Elevation: 2,761-2,784 meters (9,080-9,130 feet)
Land Form: Montane stream valley - route proceeds along a river edge through a *Salix* bog and then a meadow bench with *Picea engelmannii*, *Pinus contorta*, and *Vaccinium myrtillus*.
Major Butterfly Species: *Plebejus iacinois*

DMS - DEER MOUNTAIN SLOPE

Elevation: 2,732-2,817 meters (8,960-9,240 feet)
Land Form: Montane hillside - route proceeds up a west-facing slope through an open woods of *Pinus contorta* and *Pinus ponderosa* and into a hillside meadow.
Major Butterfly Species: *Parnassius smintheus*, *Colias alexandria*

DMT - DEER MOUNTAIN

Elevation: 2,988-3,049 meters (9,800-10,000 feet)
Land Form: Montane mountain top - route proceeds along a mountain top edge through an open woods of *Pinus contorta*, *Pinus flexilis*, *Pseudotsuga menziesii*, and *Populus tremuloides*.
Major Butterfly Species: *Oeneis chryxus*, *Erynnis persius*

DRT - DEER RIDGE TRAIL

Elevation: 2,703-2,756 meters (8,865-9,040 feet)
Land Form: Montane lake - route proceeds through an open woods of *Pinus contorta* and *Pinus ponderosa*.
Major Butterfly Species: *Parnassius smintheus*, *Pontia protodice*, *Euphiletas analla*, *Colias eurytheme*, *Colias alexandria*, *Celastrina ladon*, *Glaucopteryx hydamus*, *Agriades glandon*, *Euphiletas analla*, *Vanessa cardui*, *Coenonympha tullia ochracea*, *Ceryx otus*, *Oeneis chryxus*, *Erynnis persius*

ECL - EAGLE CLIFFS

Elevation: 2,428-2,711 meters (7,966-8,895 feet)
Land Form: Montane bench, hillside, and mountain top - route proceeds through *Pinus ponderosa* grassland, along dry bench of *Chrysothamnus viscidiflorus* var. *laevis*, *Ceanothus fendleri*, and *Bouteloua gracilis*, and up steep hillside into open woods of *Pinus ponderosa* and *Pseudotsuga menziesii*. An additional section was located along the top edge of Eagle Cliffs in rocky outcroppings and through *Pinus ponderosa* grassland.
Major Butterfly Species: *Pontia protodice*, *Glaucopteryx hydamus*, *Euphiletas analla*, *Phyciodes coqta*, *Phyciodes pratensis*, *Vanessa atalanta*, *Vanessa cardui*, *Ceryx otus*, *Oarisma garita*

EIT - EAST INLET TRAIL

Elevation: 2,604-2,610 meters (8,540-8,560 feet)
Land Form: Montane stream valley - route proceeds along the edge of a marsh with *Salix* then through a *Pinus contorta* and *Populus tremuloides* woods.
Major Butterfly Species: *Anthocharis julia*, *Celastrina ladon*

EVE - ENDOVALLEY ELK

Elevation: 2,610-2,616 meters (8,560-8,580 feet)
Land Form: Montane stream valley - route proceeds through a *Salix* bog, lakeside meadow, and a *Carex-juncus* bog.
Major Butterfly Species: *Coenonympha tullia ochracea*

FLT - FERN LAKE TRAIL

Elevation:

A Checklist & Flight Times

With contributions from Stephanie L. Mason



Speyeria allantis by Mary Peart from Wm. H. Edwards' Butterflies of North America
 Photographed by Eric Metzler
 Courtesy of Wittenberg University, Thomas Library

Butterflies of Rocky Mountain National Park - Checklist & Flight Times

Species descriptions are found in *Butterflies of Rocky Mountain National Park, an Observer's Guide* by Leslie M. Angel.

This list is compiled from data collected by volunteers of the Rocky Mountain National Park Butterfly Project during the years 1996-2003. The list does not include vagrant species rarely seen in the Park. Flight times vary up to two weeks from year to year depending on weather. Species typically found in a particular life zone may occasionally be seen at higher or lower elevations. **A=abundant C=common U=uncommon R=rare**

Name:		Date:					Abundance		
✓	Montane Subalpine Alpine	May	June	July	Aug.	Sept.	* data incomplete		
	SWALLOWTAIL FAMILY							East Side	West Side
	Rocky Mt. Parnassian (<i>Parnassius smintheus</i>)							A	C
	Black Swallowtail (<i>Papilio polyxenes</i>)							U	U
	Anise Swallowtail (<i>Papilio zelicaon</i>)							C	C
	Western Tiger Swallowtail (<i>Papilio rutulus</i>)							C	C
	Pale Swallowtail (<i>Papilio eurymedon</i>)							C	C
	Two-tailed Swallowtail (<i>Papilio multicaudata</i>)							C	C
	WHITE & SULPHUR FAMILY								
	Pine White (<i>Neophasia menapia</i>)							C	*
	Spring White (<i>Pontia sisymbrii</i>)							C	R
	Checkered White (<i>Pontia protodice</i>)							C	U
	Western White (<i>Pontia occidentalis</i>)							C	C
	Margined White (<i>Pieris marginalis</i>)							C	C
	Cabbage White (<i>Pieris rapae</i>)							U	U
	Large Marble (<i>Euchloe ausonides</i>)							A	C
	Sara Orangetip (<i>Anthocharis sara</i>)							C	C
	Clouded Sulphur (<i>Colias philodice</i>)							A	A
	Orange Sulphur (<i>Colias eurytheme</i>)							A	A
	Queen Alexandra's Sulphur (<i>Colias alexandra</i>)							A	R
	Mead's Sulphur (<i>Colias meadii</i>)							C	*
	Scudder's Sulphur (<i>Colias scudderii</i>)							C	C
	Mexican Yellow (<i>Pyrisitia mexicana</i>)							U	*
	Sleepy Orange (<i>Abaeis nicippe</i>)							U	*
	Dainty Sulphur (<i>Nathalis iole</i>)							U	R
	GOSSAMER WING FAMILY								
	Lustrous Copper (<i>Lycaena cupreus</i>)							C	*
	Ruddy Copper (<i>Lycaena rubidus</i>)							C	C
	Blue Copper (<i>Lycaena heteronea</i>)							C	C
	Purplish Copper (<i>Lycaena helloides</i>)							C	C
	Behr's Hairstreak (<i>Satyrrium behrii</i>)							U	*
	California Hairstreak (<i>Satyrrium californica</i>)							U	*
	Coral Hairstreak (<i>Satyrrium titus</i>)							U	*
	Bramble Hairstreak (<i>Callophrys drumetorum affinis</i>)							C	R
	Sheridan's Hairstreak (<i>Callophrys sheridanii</i>)							U	R
	Juniper Hairstreak (<i>Callophrys gryneus</i>)							U	U
	Thicket Hairstreak (<i>Callophrys spinetorum</i>)							U	U
	Brown Elfin (<i>Callophrys augustinus</i>)							U	*
	Hoary Elfin (<i>Callophrys polios</i>)							C	C
	Western Pine Elfin (<i>Callophrys eryphon</i>)							C	C
	Gray Hairstreak (<i>Strymon melinus</i>)							U	U
	Reakirt's Blue (<i>Echinargus isola</i>)							U	R
	Western Tailed-Blue (<i>Cupido amyntula</i>)							U	U
	Spring Azure (<i>Celastrina ladon</i>) complex							A	*
	Dotted Blue (<i>Euphilotes enoptes ancilla</i>)							U	*
	Silvery Blue (<i>Glaucopsyche lygdamus</i>)							C	C
	Melissa Blue (<i>Plebejus melissa</i>)							U	*
	Greenish Blue (<i>Plebejus saepiolus</i>)							C	C
	Biosduval's Blue (<i>Plebejus icarioides</i>)							C	C
	Shasta Blue (<i>Plebejus shasta</i>)							C	*
	Lupine Blue (<i>Plebejus lupini</i>) complex							C	R
	Arctic Blue (<i>Plebejus glandon</i>)							C	C
	BRUSHFOOT FAMILY								
	Monarch (<i>Danaus plexippus</i>)							U	U
	Variegated Fritillary (<i>Euptoieta claudia</i>)							C	C
	Aphrodite Fritillary (<i>Speyeria aphrodite</i>)							U	U
	Edwards' Fritillary (<i>Speyeria edwardsii</i>)							A	U
	Coronis Fritillary (<i>Speyeria coronis</i>)							U	U
	Zerene Fritillary (<i>Speyeria zerene</i>)							U	U
	Callippe Fritillary (<i>Speyeria callippe</i>)							R	*
	Atlantis Fritillary (<i>Speyeria atlantis</i>)							C	U
	Northwestern Fritillary (<i>Speyeria hesperis</i>)							A	U
	Mormon Fritillary (<i>Speyeria mormonia</i>)							U	A
	Bog Fritillary (<i>Boloria eunomia</i>)							U	U
	Silver-bordered Fritillary (<i>Boloria selene</i>)							R	U
	Meadow Fritillary (<i>Boloria bellona</i>)							R	C
	Frigga Fritillary (<i>Boloria frigga</i>)							*	U
	Freija Fritillary (<i>Boloria freija</i>)							C	C
	Arctic Fritillary (<i>Boloria chariclea</i>)							C	*
	Arachne Checkerspot (<i>Poladryas arachne</i>)							U	*